

532,681

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 May 2004 (27.05.2004)

PCT

(10) International Publication Number
WO 2004/044203 A1

(51) International Patent Classification⁷: C12N 15/11,
15/10, 15/82, A01K 67/00, A01H 1/00, C07K 14/435,
16/18, C12Q 1/68, G01N 33/533

Moscow (RU). YANUSHEVICH, Yuri Grigorievich
[RU/RU]; ul. Bolshaya Cherkizovskaya, 3-2-2, 107061
Moscow (RU).

(21) International Application Number:
PCT/RU2003/000474

(74) Agent: LAW FIRM "GORODISSKY & PARTNERS"
LTD.; Galina EGOROVA, ul. B.Spasskaya, 25, stroenie 3,
129010 Moscow (RU).

(22) International Filing Date:
5 November 2003 (05.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/425,570 12 November 2002 (12.11.2002) US
60/429,795 27 November 2002 (27.11.2002) US
60/464,258 21 April 2003 (21.04.2003) US
60/480,080 20 June 2003 (20.06.2003) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (*for all designated States except US*): ZAKRY-
TOE AKTSIONERNOE OBSHESTVO "EVRO-
GEN" [RU/RU]; ul. Miklukho-Maklaya, 16/10, 117997
Moscow (RU).

(84) Designated States (*regional*): ARIPO patent (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and
(75) Inventors/Applicants (*for US only*): LUKYANOV,
Sergei Anatolevich [RU/RU]; ul. Juzhnobutovskaya,
91-21, 117042 Moscow (RU). SHAGIN, Dmitry Alex-
eevich [RU/RU]; ul. Golubinskaya, 13-1-161, 117574

Published:
— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: FLUORESCENT PROTEINS AND CHROMOPROTEINS FROM NON-AEQUOREA HYDROZOA SPECIES AND METHODS FOR USING SAME

(57) Abstract: The present invention provides nucleic acid molecules encoding a fluorescent and chromo- proteins and mutants, variants and derivatives thereof, as well as proteins and peptides encoded by these nucleic acids. The nucleic acid molecules and proteins of interest are isolated from non-Aequorea Hydrozoa species. The proteins of interest include yellow fluorescent protein, phiYFP, from *Phialidium* sp., green fluorescent protein hydr1GFP and purple chromoprotein, hm2CP from hydroid medusae of sub-order Anthomedusae. Also of interest are proteins that are substantially similar to, or derivatives, or homologues, or mutants of, the above-referenced specific proteins. Also provided are fragments of the nucleic acids and the peptides encoded thereby, as well as antibodies specific to the proteins and peptides of the invention. In addition, host-cells, stable cell lines and transgenic organisms comprising above-referenced nucleic acid molecules are provided. The subject protein and nucleic acid compositions find use in a variety of different applications and methods, particularly for labeling of biomolecules, cell or cell organelles. Finally, kits for use in such methods and applications are provided.

WO 2004/044203 A1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/RU 2003/000474

A. CLASSIFICATION OF SUBJECT MATTER

C12N 15/11,15/10,15/82, A01K 67/00, A01H 1/00, C07K 14/435,16/18, C12Q 1/68, G01N 33/533

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C12N 15/11,15/63,5/10,15/82, A01K 67/00, A01H 1/00, C07K 14/435,16/18, C12Q 1/68, G01N 33/50,33/533

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched:

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	Cubitt AB at al, Understanding, improving and using green fluorescent proteins, Trends Biochem Sci.1995 Nov, 20(11):448-55,abstract	1,2
Y	IGFL A. CHAIN A, Structure of Green Fluorescent Protein, Aug. 23, 1996,	5-24
A	IGFL A GI: 1942689	3,4
Y	JP 10-234382 (DEINABETSUKU KENKYUSHO:KK) 08.09.1998, abstract, claim	5-8,11-14,20-24
Y	US 6232107 (BRYAN BRUCE J. et al.) May 15, 2001, claims 12-21,39,40,50-54,61,63	18
Y	US 5976796 (LOMA LINDA UNIVERSITY) November 2, 1999, claims 1-5	15-17,19
Y	WO 9741228 (GORDON-KAMM WILLIAM et al.) 06.11.1997, claims 16,17	9
Y	CA 2331882 (WISCONSIN ALUMNI RES FOUND) 20.01.2000, claim 1	10

Further documents are listed in the continuation of Box C.

☐ See patent family annex

* Special categories of cited documents:	"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document with may throw doubts on priori claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search report
27 January 2004 (27.01.2004)

Date of mailing of the international search report
29 January 2004 (29.01.2004)

Name and mailing address of the ISA/RU FIPS
Russia, 123995, Moskva, G-59, GSP-5
Berezhkovskaya nab., 30-1

Authorized officer

M. Kuptsova

Facsimile No.

Telephone No. (095)240-25-91